

## Abstract

U.S. Patent No. 6,232,354 issued May 15, 2001 describes an environmentally friendly and commercially practicable process for the production of microcellular 5 polymer foams from amorphous, semi-crystalline and crystalline polymers which involves consolidating the polymer, saturating the polymer with an inert gas at elevated temperature and under elevated pressure, and controllably cooling, i.e. quenching the saturated polymer under a variety of temperature and pressure conditions to produce either a closed or open celled microcellular foam or a high 10 density microcellular foam. It has now been discovered that a process similar to that described in this patent can be used for the production of nanocomposite and molecular-composite foams that exhibit exceptional physical properties.